

WE CLAIM:

1. A fabric treatment composition comprising:

(a) fabric treatment agent; and

(b) carrier component for containing the fabric treatment agent in a solid form during operating conditions in a dryer;

wherein the fabric treatment composition transfers to wet fabric as a result of solubilizing the fabric treatment composition by contacting the fabric treatment composition with the wet fabric during a drying operation in a dryer.

2. A fabric treatment composition according to claim 1, wherein the fabric treatment agent comprises at least one of softening agents, anti-static agents, anti-wrinkling agents, dye transfer inhibition/color protection agents, odor removal/odor capturing agents, soil shielding/soil releasing agents, ultraviolet light protection agents, fragrances, sanitizing agents, disinfecting agents, water repellency agents, insect repellency agents, anti-pilling agents, souring agents, mildew removing agents, allergicide agents, and mixtures thereof.

3. A fabric treatment composition according to claim 2, wherein the fabric treatment agent comprises a fabric softener component comprising at least one quaternary ammonium compound.

4. A fabric treatment composition according to claim 3, wherein the fabric softener component comprises at least one quaternary ammonium compound selected from at least one of alkylated quaternary ammonium compounds, ring or cyclic quaternary ammonium compounds, aromatic quaternary ammonium compounds, diquaternary ammonium compounds, alkoxyated quaternary ammonium compounds, amidoamine quaternary ammonium compounds, ester quaternary ammonium compounds, and mixtures thereof.

5. A fabric treatment composition according to claim 3, wherein the fabric softener component comprises an alkylated quaternary ammonium compound having an alkyl group containing between about 6 and 24 carbon atoms.
6. A fabric treatment composition according to claim 5, wherein the alkylated quaternary ammonium compound comprises at least one of monoalkyl trimethyl quaternary ammonium compound, monomethyl trialkyl quaternary ammonium compound, and dialkyl dimethyl quaternary ammonium compound.
7. A fabric treatment composition according to claim 3, wherein the fabric softener component comprises at least one of dimethyl alkyl benzyl quaternary ammonium compound, monomethyl dialkyl benzyl quaternary ammonium compound, trimethyl benzyl quaternary ammonium compound, and trialkyl benzyl quaternary ammonium compound, wherein the alkyl group contains between about 6 and about 24 carbon atoms.
8. A fabric treatment composition according to claim 3, wherein the fabric softener component comprises at least one of methyldialkoxy alkyl quaternary ammonium compound, trialkoxy alkyl quaternary ammonium compound, trialkoxy methyl quaternary ammonium compound, dimethyl alkoxy alkyl quaternary ammonium compound, and trimethyl alkoxy quaternary ammonium compound, wherein the alkyl group contains between about 6 and about 24 carbon atoms and the alkoxy group contains about 1 and about 50 repeating units, and each repeating alkoxy group contains between about 2 and about 3 carbon atoms.
9. A fabric treatment composition according to claim 3, wherein the fabric softener component comprises at least one of methyl bis(tallow amidoethyl)-2-hydroxyethyl ammonium methyl sulfate, methyl bis(oleylamidoethyl)-2-hydroxyethyl ammonium methyl sulfate, methyl bis(hydrogenated tallow amidoethyl)-2-hydroxyethyl ammonium methyl sulfate and mixtures thereof.

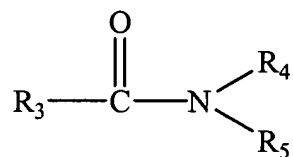
10. A fabric treatment composition according to claim 1, wherein the carrier component comprises at least one of ethylene bisamides, primary alkylamides, alkanolamides, polyamides, alcohols containing at least 12 carbon atoms, alkoxyated alcohols containing at least 12 carbon atoms, carboxylic acids containing at least about 12 carbon atoms, derivatives thereof, and mixtures thereof.

11. A fabric treatment composition according to claim 1, wherein the carrier component comprises ethylene bisamide having the formula:



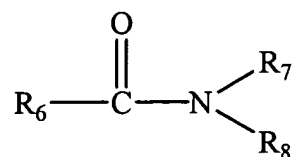
wherein R_1 and R_2 can be the same or different and each are an alkyl group containing at least 6 carbon atoms.

12. A fabric treatment composition according to claim 1, wherein the carrier component comprises a primary alkylamide having the formula:



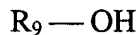
wherein R_3 is an alkyl group containing between about 6 and about 24 carbon atoms, and R_4 and R_5 can be the same or different and each are hydrogen or an alkyl group containing 1 to about 24 carbon atoms.

13. A fabric treatment composition according to claim 1, wherein the carrier component comprises an alkanolamide having the formula:



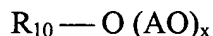
wherein R₆ is an alkyl group containing between about 6 and about 24 carbon atoms, and R₇ and R₈ can be the same or different and each are one of hydrogen, C₂H₄OH, and C₃H₆OH.

14. A fabric treatment composition according to claim 1, wherein the carrier component comprises an alcohol having the formula:



wherein R₉ is an alkyl group containing about 12 to about 24 carbon atoms.

15. A fabric treatment composition according to claim 1, wherein the carrier component comprises an alkoxyated alcohol having the formula:



wherein R₁₀ is an alkyl group containing between about 12 and about 24 carbon atoms, and x is a number from 1 to 100.

16. A fabric treatment composition according to claim 1, wherein the carrier component comprises at least one of ethylene bis-stearamide, ethylene bispalmitamide, ethylenebisoleamide, ethylene bisbehenamide, and mixtures thereof.

17. A fabric treatment composition according to claim 1, wherein the carrier component comprises at least one of stearyl alcohol and behenyl alcohol.

18. A fabric treatment composition according to claim 1, wherein the composition is provided in the form of a solid unit having a size of at least about 5 grams.
19. A fabric treatment composition according to claim 1, wherein the composition is provided in the form of a block wherein the block is constructed to provide release of an effective amount of the fabric treatment agent during at least 10 drying cycles in a dryer.
20. A fabric treatment composition according to claim 1, wherein the composition in the form of block constructed for attachment to an inside surface of a dryer.
21. A fabric treatment composition according to claim 1, wherein the composition is in the form of a ball constructed to release the fabric treatment agent during at least 10 drying cycles.
22. A fabric treatment composition according to claim 1, wherein the composition is in the form a solid constructed to provide a single use delivery of the fabric treatment agent during a drying operation.
23. A fabric treatment composition according to claim 22, wherein the composition is provided laminated to a fabric to provide a dryer sheet.
24. A fabric treatment composition according to claim 22, wherein the composition is in the form of at least one of a pellet, a tablet, and a molded unit.
25. A fabric treatment composition according to claim 1, wherein the composition has a melting temperature above 90°C.
26. A fabric treatment composition according to claim 3, wherein cotton terry cloth towels, when subjected to at least 10 drying cycles in the presence of the fabric treatment composition, exhibit a whiteness retention of at least 90%.

27. A fabric treatment composition according to claim 3, wherein fabric dried in the presence of the fabric treatment composition exhibit at least a 50% static reduction compared with the fabric dried outside of the presence of the fabric treatment composition.
28. A fabric treatment composition according to claim 1, wherein the fabric treatment agent comprises an anti-wrinkling agent comprising siloxane or silicone containing compounds.
29. A fabric treatment composition according to claim 1, wherein the fabric treatment agent comprises an odor capturing agent.
30. A fabric treatment composition according to claim 1, wherein the fabric treatment agent comprises a color protection agent.
31. A fabric treatment composition according to claim 1, wherein the fabric treatment agent comprises a soil releasing agent.
32. A fabric treatment composition according to claim 1, wherein the fabric treatment agent comprises an optical brightening agent comprising fluorescing compounds.
33. A fabric treatment composition according to claim 1, wherein the fabric treatment agent comprises a UV protection agent.
34. A fabric treatment composition according to claim 1, wherein the fabric treatment agent comprises an anti-pilling agent comprising a cellulase enzyme.
35. A fabric treatment composition according to claim 1, wherein the fabric treatment agent comprises a water repellency agent comprising perfluoroacrylate copolymers, hydrocarbon waxes, and polysiloxanes.

36. A fabric treatment composition according to claim 1, wherein the fabric treatment agent comprises a disinfecting and/or sanitizing agent.

37. A fabric treatment composition according to claim 1, wherein the fabric treatment agent comprises a souring agent for neutralizing residual alkaline.

38. A fabric treatment composition according to claim 1, wherein the fabric treatment agent comprises an insect repellent.

39. A fabric treatment composition according to claim 1, wherein the carrier component comprises a non-dispensing carrier.

40. A fabric treatment composition according to claim 39, wherein the non-dispensing carrier comprises at least one of polyalkylenes, polyesters, polyurethanes, polyamides, polycarbonates, polysulfones, polysiloxanes, polydienes, polyacrylates, and addition polymers.

41. A fabric treatment composition according to claim 1, wherein the composition further comprises at least one of plasticizers, fragrances, and dyes.

42. A fabric treatment composition according to claim 1, wherein the composition is constructed to provide substantially no transfer of the fabric treatment agent once fabric in the dryer has dried.

43. A method for treating fabric in a dryer, the method comprising:

(a) allowing fabric containing free water to contact a fabric treatment composition inside a dryer during a drying operation, wherein the fabric treatment composition comprises:

(i) fabric treatment agent; and

(ii) carrier component for containing the fabric treatment agent in a solid form during operation conditions in a dryer; and

(b) transferring the fabric treatment agent from the fabric treatment composition to the fabric as a result of solubilizing the fabric treatment agent with the free water in the fabric.

44. A method according to claim 43, wherein the step of transferring the fabric treatment composition substantially ends when the fabric dries sufficiently to lose the free water.

45. A method according to claim 43, wherein the step of transferring the fabric treatment composition comprises transferring the fabric treatment composition at a rate that decreases as the fabric dries during the drying operation.

46. A method according to claim 43, wherein the fabric treatment agent comprises at least one of softening agents, anti-static agents, anti-wrinkling agents, dye transfer inhibition/color protection agents, odor removal/odor capturing agents, soil shielding/soil releasing agents, ultraviolet light protection agents, fragrances, sanitizing agents, disinfecting agents, water repellency agents, insect repellency agents, anti-pilling agents, souring agents, mildew removing agents, allergicide agents, and mixtures thereof.

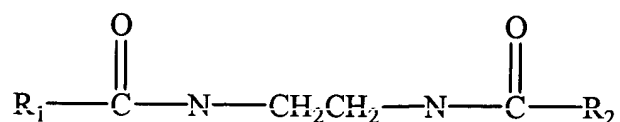
47. A method according to claim 43, wherein the fabric treatment agent comprises a fabric softener component comprising at least one quaternary ammonium compound.

48. A method according to claim 47, wherein the fabric softener component comprises at least one quaternary ammonium compound selected from at least one of alkylated quaternary ammonium compounds, ring or cyclic quaternary ammonium compounds, aromatic quaternary ammonium compounds, diquaternary ammonium compounds, alkoxyated quaternary ammonium compounds, amidoamine quaternary ammonium compounds, ester quaternary ammonium compounds, and mixtures thereof.

49. A method according to claim 47, wherein the fabric softener component comprises an alkylated quaternary ammonium compound having an alkyl group containing between about 6 and 24 carbon atoms.
50. A method according to claim 47, wherein the alkylated quaternary ammonium compound comprises at least one of monoalkyl trimethyl quaternary ammonium compound, monomethyl trialkyl quaternary ammonium compound, and dialkyl dimethyl quaternary ammonium compound.
51. A method according to claim 47, wherein the fabric softener component comprises at least one of dimethyl alkyl benzyl quaternary ammonium compound, monomethyl dialkyl benzyl quaternary ammonium compound, trimethyl benzyl quaternary ammonium compound, and trialkyl benzyl quaternary ammonium compound, wherein the alkyl group contains between about 6 and about 24 carbon atoms.
52. A method according to claim 47, wherein the fabric softener component comprises at least one of methyldialkoxy alkyl quaternary ammonium compound, trialkoxy alkyl quaternary ammonium compound, trialkoxy methyl quaternary ammonium compound, dimethyl alkoxy alkyl quaternary ammonium compound, and trimethyl alkoxy quaternary ammonium compound, wherein the alkyl group contains between about 6 and about 24 carbon atoms and the alkoxy group contains about 1 and about 50 repeating units, and each repeating alkoxy group contains between about 2 and about 3 carbon atoms.
53. A method according to claim 47, wherein the fabric softener component comprises at least one of methyl bis(tallow amidoethyl)-2-hydroxyethyl ammonium methyl sulfate, methyl bis(oleylamidoethyl)-2-hydroxyethyl ammonium methyl sulfate, methyl bis(hydrogenated tallow amidoethyl)-2-hydroxyethyl ammonium methyl sulfate and mixtures thereof.

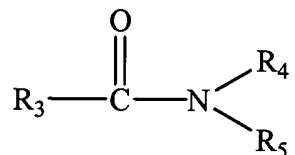
54. A method according to claim 43, wherein the carrier component comprises at least one of ethylene bisamides, primary alkylamides, alkanolamides, polyamides, alcohols containing at least 12 carbon atoms, alkoxyated alcohols containing at least 12 carbon atoms, carboxylic acids containing at least about 12 carbon atoms, derivatives thereof, and mixtures thereof.

55. A method according to claim 43, wherein the carrier component comprises ethylene bisamide having the formula:



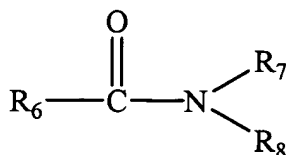
wherein R_1 and R_2 can be the same or different and each are an alkyl group containing at least 6 carbon atoms.

56. A method according to claim 43, wherein the carrier component comprises a primary alkylamide having the formula:



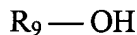
wherein R_3 is an alkyl group containing between about 6 and about 24 carbon atoms, and R_4 and R_5 can be the same or different and each are hydrogen or an alkyl group containing 1 to about 24 carbon atoms.

57. A method according to claim 43, wherein the carrier component comprises an alkanolamide having the formula:



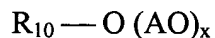
wherein R_6 is an alkyl group containing between about 6 and about 24 carbon atoms, and R_7 and R_8 can be the same or different and each are one of hydrogen, $\text{C}_2\text{H}_4\text{OH}$, and $\text{C}_3\text{H}_6\text{OH}$.

58. A method according to claim 43, wherein the carrier component comprises an alcohol having the formula:



wherein R_9 is an alkyl group containing about 12 to about 24 carbon atoms.

59. A method according to claim 43, wherein the carrier component comprises an alkoxyated alcohol having the formula:



wherein R_{10} is an alkyl group containing between about 12 and about 24 carbon atoms, and x is a number from 1 to 100.

60. A method according to claim 43, wherein the carrier component comprises at least one of ethylene bis-stearamide, ethylene bispalmitamide, ethylenebisoleamide, ethylene bisbehenamide and mixtures thereof.

61. A method according to claim 43, wherein the composition is provided in the form of a solid unit having a size of at least about 5 grams.

62. A method according to claim 43, wherein the composition is provided in the form of a block wherein the block is constructed to provide release of an effective amount of the fabric treatment agent during at least 10 drying cycles in a dryer.
63. A method according to claim 43, wherein the composition in the form of block constructed for attachment to an inside surface of a dryer.
64. A method according to claim 43, wherein the composition is in the form of a ball constructed to release the fabric treatment agent during at least 10 drying cycles.
65. A method according to claim 43, wherein the composition is in the form a solid constructed to provide a single use delivery of the fabric treatment agent during a drying operation.
66. A method according to claim 43, wherein the composition is provided laminated to a fabric to provide a dryer sheet.
67. A method according to claim 43, wherein the composition is in the form of at least one of a pellet, a tablet, and a molded unit.
68. A method according to claim 43, wherein the composition has a melting temperature above 90°C.
69. A method according to claim 43, wherein cotton terry cloth towels, when subjected to at least 10 drying cycles in the presence of the fabric treatment composition, exhibit a whiteness retention of at least 90%.
70. A method according to claim 43, wherein fabric dried in the presence of the fabric treatment composition exhibit at least a 50% static reduction compared with the fabric dried outside of the presence of the fabric treatment composition.